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ABSTRACT

Three trends in the United States have implications for the redirection of secondary vocational education--the educational reform movement, the projected work force in the year 2000, and the population to be served in the next decade. Emerging is increasing support for the concept that education is not just important to the nation's economic well-being but will critically affect future quality of life. The educational reform movement calls for the elevation of the academic performance of students, including an increased focus on basic skills. Major trends emerging in the workplace are the need for more education and an economy dominated by service-type jobs. Accompanying these changes in the workplace will be dramatic changes in the population to be educated for employment. The work force will be older and more female and have more minority workers. About 25 percent of the student population will be classified as at risk. To begin the refocusing necessary to prepare students, secondary vocational education personnel--leaders and teachers--must begin an orderly process of examining the current structure and content of the curriculum for the evident and anticipated changes in the workplace. Criteria for curriculum review are (1) standards and/or expectations; (2) time on task for reinforcing the basics; (3) relevance of content; (4) application of knowledge, skills, and attitudes; (5) problem solving; and (6) articulation. (YLB)

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WORKFORCE 2000: IMPLICATIONS FOR THE REFOCUSING OF SECONDARY VOCATIONAL EDUCATION FOR TOMORROW'S STUDENTS

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Most people and organizations reach a point in time when they must assess their current status and then decide whether to perpetuate the status quo or consider a new direction. For secondary vocational education in America, the time for examination and decision has arrived. This article examines the implications for the redirection of secondary vocational education based upon (1) the educational reform movement; (2) the projected workforce in the year 2000; and (3) the population to be served in the next decade. Based upon these implications, the author will offer a vision for secondary vocational education and the related criteria for examining existing curricula.

Educational Reform Movement

Emerging in America is increasing support for the concept that education is not just important to our economic well being but will critically impact on our future quality of life. Education, while deemed essential to the perpetuation of the democratic society, is now directly related to our level of competitiveness in the world economy. This view was dramatically introduced in A Nation at Risk in 1983 and has been supported by other authors since then. A Nation at Risk identifies the shortcomings of American education as compared to other industrialized nations and indicates that our country has been in a state of decline in recent years. Highlights, such as those provided below, ushered in the era of educational reform.

** In 1972 on 19 academic tests American students were never first or second and, in comparison with other

industrialized nations, were last seven times;

** About 13 percent of all 17 year-olds in the United States can be considered functionally illiterate;

** Average achievement by high school students on most standardized tests is now lower than 26 years ago;

** Scholastic Aptitude Test scores demonstrate a virtually unbroken decline from 1963 to 1980;

** Business and military leaders complain that they are required to spend millions of dollars on costly remedial education.

Embedded in the deteriorating position of American economic competitiveness and the educational reform movement are clear signals that the academic performance of our students must be elevated if America is to remain competitive in the global economy. These studies suggest that our students are behind students of other industrialized nations in their level of educational achievement. Other countries, such as Japan, have a longer school day, week and year and require more homework. Their increased time on academic tasks and higher expectations, and not comparative ability, put our students at a disadvantage in basic skill achievement levels. Implicit in this deficiency or achievement gap is the need to increase the basic skill level of our students by increasing our focus on the basic skills.

Workforce in the Year 2000

One major trend emerging in the American workplace is the

need for more education. The educational reform movement evolved from the premise that our academic standards have declined and with it our competitive edge in the world economy. The academic deterioration in student performance is inversely related to the projected requirements of the current and future workplace. According to the Hudson Institute, the current grade level educational equivalent requirement for all jobs is 12.8 years. For jobs created between 1984 and the year 2000, the grade level equivalent will increase to 13.5 years. Jobs requiring postsecondary education will rise from 42 percent for current jobs to 52 percent for the jobs created between 1984 and 2000 (see Table 1).

Table 1
THE OCCUPATIONS OF THE FUTURE WILL REQUIRE MORE EDUCATION

	Current Jobs	New Jobs
Total	100%	100%
8 Years or Less	6%	4%
1-3 Years of High School	12%	10%
4 Years of High School	40%	35%
1-3 Years of College	20%	22%
4 Years of College or More	22%	30%
Median Years of School	12.8	13.5

Source: Bureau of Labor Statistics, Hudson Institute

The need for increased basic or functional skills (communications, reading and math) required for future jobs will continue to increase through the end of this century (see Table 2). Clearly, the academic standards in the classrooms of America

must be elevated if we are to meet the economic challenges ahead.

Table 2
FAST-GROWING JOBS REQUIRE LANGUAGE, MATH AND REASONING SKILLS

	Current Jobs	Fast Growing	Slowly Growing	Declining
Language Rating	3.1	3.8	2.7	1.9
Math Rating	2.6	3.1	2.3	1.6
Reading Rating	3.5	4.2	3.2	2.6

Source: Hudson Institute

A second trend in the changing nature of work is reflected in the structure of work. Our economy will be dominated by service-type jobs as the contribution of manufacturing jobs to the GNP will drop to only 17 percent by 2000. The average number of employees in production or manufacturing companies is 60 whereas a typical service establishment averages only 11 employees. A service economy requires a more versatile worker than that required by a production-based economy. As the bureaucracy flattens, the responsibility of the individual employee increases. Evidence of this change was pointed out by Berryman (1987) when she reported that when the insurance industry was restructured in response to computerization and international competition, five jobs were collasped into one. In that instance, jobs held by five people and titled file clerk, messenger, customer assistance clerk, claims adjuster and policy writer were reclassified as a claims adjuster and the functions are carried out by one person using the resources

of the computer and a laser printer to produce customized insurance contracts. Changes of this type not only support the need for an increase in the basic skill level of all workers but also support the need for increased adaptive (human relations, etc.) and technical skills for interfacing with the new technology.

Population to be Served--Changing Demographics

Accompanying changes in the workplace will be dramatic changes in the population to be educated for employment in the 21st century. That difference is most clearly reflected in a projection by the Hudson Institute that only 15 percent of all jobs created between 1984 and 2000 will be filled by white males. Once the bastion of the American workforce, that majority will be displaced by a workforce that will be older, more female and have more minority workers.

It is estimated that approximately 25 percent of the population to be educated will be classified as at-risk students. Berryman (1987, p 6.) defines at-risk learners as "those who do not perform well in traditional or training programs arranged like traditional schools, either because they are not very good at standard academic subjects or--and this is an exceedingly important 'or'--because they do not want to or do not see the point of being good at them." At-risk students currently make up a large percentage of the nation's dropouts, which was estimated at 28 percent in 1986 (Smith and Hester, 1985, p. 6.) At-risk students' achievement is lower, and they

enter high school two or more years behind their peers. Historically, these students have not closed the academic gap. The plight of these students is further compounded by a reduction of the jobs in the workplace which will require less education. That point is made clearer by the data provided in Table 1. These data indicate that new jobs requiring less than a high school diploma will shrink from 18 percent to 14 percent by 2000.

The proliferation of inadequately prepared students further compounds a situation which is already viewed as bad by industry. Employers have expressed concern about the need to spend enormous amounts of money to equip workers with the basic skills in order to remain competitive (New York Times, 1988). In a recent speech, another employer indicated that fully 35 percent of applicants for clerical positions are eliminated due to inadequate basic skills (Sheheane, 1988). Rosenfeld (1988) indicated the current expectations of business are for the schools to prepare graduates "with a solid grounding in the basics." The resounding message is that we must improve the basic or functional skill level of our students before they enter the workforce if we are to remain competitive in the world economy.

Implications for Secondary Vocational Education

The depth and breadth of evidence clearly supports the fact that the academic, functional or basic skill levels of our students must be increased to match the demands of the 21st

century workplace. The argument over whether the role of secondary vocational education is to prepare people for employment or provide basic skills education should be put to rest. It is pure folly to think that focusing on occupational skills without preparing students to achieve at an acceptable level of basic skills will lead to anything but unemployment or underemployment.

The structural changes in the workplace will require employees to work independently and solve more problems themselves. In addition, work of tomorrow will require employees to carry out a broader range of functions in the workplace. Implicit in these requirements is the need to prepare students with increased adaptive skills (human relations, etc.) to faciliate their integration into and alignment with the workplace.

Secondary vocational education, like all education, will continue to be populated with increasing numbers of at-risk students. Secondary vocational education has a distinct advantage because of the relevance of content and the opportunity to apply knowledge and skills in the laboratory setting. These advantages can be put to good use in facilitating learning for students already alienated by abstract approaches to learning.

Tomorrow's worker must be prepared to not only change occupations but to also adapt to complex and changing technology. Today's student must be capable of self-direction if

he is to be successful in tomorrow's workplace.

Criteria for Assessing the Current Status of Secondary Vocational Education

In order to begin the refocusing necessary to prepare our students, secondary vocational education personnel (leadership and teachers) must begin an orderly process of examining the current structure and content of the curriculum for the evident and anticipated changes in the workplace. To facilitate this review, the following criteria or considerations are provided. They are neither final nor all-inclusive, but are offered as suggestions for reviewing the appropriateness of existing curricula. The criteria for curricula review are (1) Standards and/or Expectations; (2) Time on Task for Reenforcing the Basics; (3) Relevance of Content; (4) Application of Knowledge, Skills and Attitudes; (5) Problem Solving and Decision Making and (6) Articulation. A brief discussion of each of the criteria or suggestions is provided below.

1. Standards and/or Expectations

Curriculum must be examined to determine if the existing basic or functional skill level or expectation is congruent with the current demands of the workplace. Content must be examined to determine if adaptive (human relations, etc.), employability (attitude, etc.), and occupational content skills are appropriate for the changing workplace. Secondary vocational educators must view instructional objectives in a more comprehensive manner than ever before. Clearly, though, the standard of basic skills must

be elevated if our students are to be successful. To focus on occupational skills alone will no longer prepare workers for tomorrow.

2. Time on Task for Reenforcing the Basic Skills

Webber (1986) in a survey of 893 classrooms in 120 high schools found that 60 to 64 percent of the instructional time included use of the basic skills, but only two to three percent of the time was focused on the basic skills. If our students are to compete for the desirable jobs, then more time must be dedicated to this effort. Curriculum should be reviewed to ascertain if opportunities for reenforcing the basics can be increased. A standard, significantly above three percent, must be adopted for the secondary vocational education classroom.

3. Relevance of Content

While relevance of content is helpful in some way to most students, it is clearly more beneficial to students who will populate future secondary vocational education classrooms. Some may suggest that relevance of content is not significant to learning, but this author believes that relevance of content is beneficial to the learning process of at-risk students. Curricula should be examined to determine if relevance of content has been maximized to motivate students to learn.

4. Application of Knowledge, Skills and Attitudes

The secondary vocational education laboratories are assets that offer significant advantages for the reenforcement of

learning through the application of learning. This opportunity is typically limited in education to physics, chemistry and biology laboratories. Application of learning in the vocational laboratory should be maximized and teachers fully prepared to take advantage these assets. Concurrently, curriculum should be examined to determine if application opportunities are being utilized whenever possible.

5. Problem Solving and Decision Making

The worker of tomorrow, and indeed today, will be called upon to make more decisions and solve more problems than ever before. Learning activities which provide students with these skills should be included to facilitate the development of these skills. Students must also be taught how to adjust the requirements for learning to changes in the workplace which are certainly going to occur at an ever-increasing rate.

6. Articulation

There should be a concerted effort to facilitate both vertical and horizonatal articulation. Vertical articulation, if credits for prior accomplishments can be given, will encourage students to pursue additional education if they do not have to repeat prior learning and can get credit for relevant learning. In view of the increasing standards in basic, adaptive, employability and occupational skills, horizontal articulation should be encouraged to allow students to move successfully within the system. Students need help in moving within the

system, and a fully articulated curriculum will work to everyone's advantage.

Conclusion

Secondary vocational education, like all of education, must begin to raise the basic skill achievement level of all students if America is to remain competitive in the global economy. Secondary vocational educators must look carefully at their curriculum to insure that the content is appropriate for the current and the future workplace. That will require secondary vocational education personnel (teachers and leadership) to be as attentive to basic, adaptive and employability skills as they have been to occupational skills in the curricula. It is time for secondary vocational educators to fully utilize the advantages of the relevance and application of content in the laboratory setting. It is a window of opportunity which offers an exciting challenge in the preparation of our students for the workplace of tomorrow.

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